

5.0 REASONABLE ASSURANCE AND IMPLEMENTATION

The development of TMDLs is only the beginning of the process for stream restoration and watershed management. Load allocations to point and nonpoint sources serve as targets for improvement, but success is determined by the level of effort put forth in making sure that those goals are achieved. The load reductions proposed by the nutrient and low dissolved oxygen TMDLs require specific watershed management measures to ensure successful implementation.

Reasonable assurance indicates a high degree of confidence that each waste load allocation (WLA) and load allocation in a TMDL will be implemented. EPA expects the states to implement these TMDLs by ensuring that NPDES permits are consistent with the WLAs described herein. According to 40 CFR 122.44(d)(1)(vii)(B), the effluent limitations for a NPDES permit must be consistent with the assumptions and requirements of any available WLA for the discharge prepared by the state and approved by EPA. Furthermore, EPA has authority to object to issuance of a NPDES permit that is inconsistent with the WLAs established for that point source. Additionally, according to 40 CFR 130.7(d)(2), approved TMDL loadings shall be incorporated into the states' current water quality management plans. These plans are used to direct implementation and draw upon the water quality assessments to identify priority point and nonpoint source water quality problems, consider alternative solutions, and recommend control measures. This provides further assurance that the pollutant allocations of the TMDLs will be implemented.

In terms of nonpoint sources, the load allocations are representative of expected pollutant loads during typical hydrologic seasons including dry and wet weather conditions. The loadings from nonpoint sources are expected to vary considerably from dry to wet hydrologic extremes. Therefore, reductions from existing conditions were necessary to meet water quality standards during variable-flow conditions. Reasonable assurance that the load allocations will be met is based on the extensive data set used to characterize the nonpoint source pollutant loadings in the hydrological watershed model.

Implementation of best management practices (BMPs) in the affected areas should achieve the loading reduction goals established in the TMDLs. Substantial reductions in the amount of nutrients reaching the streams can be made through the planning of riparian buffer zones, contour strips, cover crops, or stormwater retention techniques. These BMPs range in efficiency from 20% to 70% for nutrient reduction. Further investigations should be performed in order to assess both the extent of existing BMPs, and to determine the most cost-effective and environmentally protective combination of BMPs required for meeting the nutrient reductions outlined in this report.

There are state and local policies and regulations in place to help ensure implementation of BMPs. At the state level, PADEP has developed a Proposed Comprehensive Stormwater Management Policy (Appendix A) that encourages implementation of BMPs for stormwater control to reduce pollutant loadings, recharge groundwater tables, enhance stream baseflow during drought periods, and reduce the threat of stream bank erosion and flooding. This policy seeks to integrate watershed management plans with permitting programs; therefore incorporation of TMDL targets at this stage is essential for setting goals for future watershed management plans. Such watershed management plans should be consistent with Stormwater

Management Plans developed by counties and implemented by municipalities on a watershed basis, as required by the Pennsylvania Stormwater Management Act (Act 167).

At the Federal level, EPA's storm water permitting regulations require municipalities to obtain permit coverage for all storm water discharges from separate storm sewer systems (MS4s). Due to the variability of storm events and discharges from storm sewer system discharges, it is difficult to establish numeric limits on stormwater discharges that accurately address projected loadings. As a result, EPA regulations and guidance recommend expressing NPDES permit limits for MS4s as BMPs, and only using numeric limits in unique instances. Such BMP plans should accompany monitoring plans that test the performance of BMPs and provide a basis for adaptive management techniques. This iterative strategy is consistent with the watershed management approach discussed above, and allows an implementation plan where realistic goals can be set to improve the water quality of the streams through the use of BMPs throughout the watershed. The intention is to implement BMPs as required through the Federal and state policies and regulations described above with the ultimate goal of achieving the WLA to meet interstate instream water quality standards. For more information, see the EPA memorandum titled *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs* (Nov 22, 2002) in Appendix B.

For purposes of this TMDL, WLAs were developed for each municipality holding MS4 permits. Distribution of loads was estimated using land use data within municipal boundaries and application of unit area loadings (lbs/acre/year) determined for subbasins defined in the HSPF model and used for TMDL development. As additional data are collected by PADEP regarding drainage areas of each storm sewer system in the basin, these WLAs can be refined to more detailed representation of WLAs for each stormwater permit and LAs for areas not bound by such permits. To do this, the drainage area of each storm sewer should be delineated so that the area and distributions of land use can be determined. The remaining load in each respective township can then be assigned to LAs. Until such storm water drainage area data are available, the WLAs and required load reductions reported herein are applicable.